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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,597	05/24/2002	Wolfgang Dultz	2345/159	5232

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EXAMINER	
PHAN, HANH	

ART UNIT	PAPER NUMBER
2613	

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10/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/890,597	DULTZ ET AL.	
	Examiner	Art Unit	
	Hanh Phan	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 06/30/2008.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 13-15, 17, 18, 20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haas et al (US Patent No. 5,311,346) in view of Robinson et al (US Patent No. 6,404,520) **OR** Favin et al (US Patent No. 5,371,597) **OR** Cao (US Patent No. 6,130,766).

Regarding claims 13 and 17, referring to Figures 1 and 2, Haas discloses a method for reducing distortion of an optical pulse contained in a communication-transmitting luminous flux in an optical communication system caused by polarization mode dispersion, comprising:

driving a polarization-controlling device to adjust a polarization of the optical pulse so that a transmission quality of the optical communication system is maximized, wherein the driving of the polarization-controlling device functions in response to the transmission quality detected (As indicated in Fig. 1, a control circuit 30 driving a polarization controlling device 32 response to the transmission quality detected, col. 3, lines 32-67, col. 4, lines 1-49, and col. 6, lines 32-49 and lines 61-67); and

using a coupled-out portion of the communication transmitting luminous flux to determine the transmission quality of the optical communication system (As indicated in Fig. 1, the photo-detector 18 detects the optical output signal to determine the transmission quality of the optical communication system, col. 3, lines 32-67, col. 4, lines 1-49, and col. 6, lines 32-49 and lines 61-67).

Haas differs from claims 13 and 17 in that he fails to specifically teach using a small, coupled-out portion of the communication-transmitting luminous flux to determine the transmission quality of the optical communication system. Robinson et al, from the same field of endeavor, likewise teaches a polarization mode dispersion compensator (Figure 3). Robinson et al further teaches using a small, coupled-out portion of the communication-transmitting luminous flux to determine the transmission quality of the optical communication system (As in Figure 3, Robinson et al teaches a small, coupled out portion of the communication transmitting luminous flux is tapped by an optical tap 37 and providing the tapped signal to a signal-to-noise-ratio meter 36 to determine the transmission quality of the optical communication system, and the signal- to-noise-ratio meter 36 provides the signal to noise ratio information SNR to the controller 22 for controlling the polarization mode dispersion compensator PMDC 32, col. 5, lines 5-32). **OR** Favin et al, from the same field of endeavor, likewise teaches an polarization mode dispersion compensator (Figure 1). Favin et al further teaches using a small, coupled-out portion of the communication-transmitting luminous flux to determine the transmission quality of the optical communication system (As indicated in Fig. 1, using a small, coupled out portion of the communication transmitting luminous flux from an

optical tap 106 to determine the transmission quality of the optical communication system by a power meter 110 and providing the information signal to the controller 118 for controlling the polarization controller 104, col. 4, lines 60-67, col. 5, lines 1-34 and col. 6, lines 1-20). **OR** Cao, from the same field of endeavor, likewise teaches an polarization mode dispersion compensator (Figures 1 and 2). Cao further teaches using a small, coupled-out portion of the communication-transmitting luminous flux to determine the transmission quality of the optical communication system (As indicated in Fig. 1, using a small, coupled out portion of the communication transmitting luminous flux from an optical beam splitter 24 to determine the transmission quality of the optical communication system by a DSP control unit 30 and providing the control signal to the driver 28 for controlling the polarization controller 22, col. 4, lines 64-67, col. 5, lines 1-67 and col. 6, lines 1-54). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the using a small, coupled-out portion of the communication-transmitting luminous flux to determine the transmission quality of the optical communication system as taught by Robinson et al **OR** Favin et al **OR** Cao in the system of Haas. One of ordinary skill in the art would have been motivated to do this since allowing compensating the polarization mode dispersion of the optical signal and to reduce the distortion of the optical signal and improving the quality of the received signal.

Regarding claims 14 and 25, the combination of Hass and Robinson et al OR Favin et al OR Cao teaches resetting the polarization of the optical pulse in predefined time intervals for optimizing communication (i.e., Fig. 1 of Hass, col. 3, lines 32-67, col.

4, lines 1-49, and col. 6, lines 32-49 and lines 61-67, and Fig. 1 of Cao, col. 4, lines 64-67, col. 5, lines 1-67 and col. 6, lines 1-54).

Regarding claims 15 and 18, the combination of Hass and Robinson et al OR Favin et al OR Cao teaches wherein the polarization of the optical pulse is controlled at an input end of the optical communication system (i.e., Fig. 1 of Hass, col. 3, lines 32-67, col. 4, lines 1-49, and col. 6, lines 32-49 and lines 61-67, and Fig. 1 of Cao, col. 4, lines 64-67, col. 5, lines 1-67 and col. 6, lines 1-54).

Regarding claim 20, the combination of Hass and Robinson et al OR Favin et al OR Cao teaches the polarization-controlling device includes a first $\lambda/4$ delay element, a $\lambda/2$ delay element and a second $\lambda/4$ delay element, the first $\lambda/4$, $\lambda/2$ and second $\lambda/4$ delay elements being disposed in series as $\lambda/4$-$\lambda/2$-$\lambda/4$ and being adjustable (i.e., Fig. 1 of Haas, col. 3, lines 32-67, col. 4, lines 1-49, and col. 6, lines 32-49 and lines 61-67, and Fig. 1 of Cao, col. 4, lines 64-67, col. 5, lines 1-67 and col. 6, lines 1-54).

4. Claims 16, 19, 21-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haas et al (US Patent No. 5,311,346) in view of Robinson et al (US Patent No. 6,404,520) **OR** Favin et al (US Patent No. 5,371,597) **OR** Cao (US Patent No. 6,130,766) further in view of Wiech et al, "Optical Signal-to-noise Ratio Measurement in WDM Networks Using Polarization extinction", September 20-24 1998, Marid, Spain, Vol. 1, Pages 549-550).

Regarding claims 16, 19 and 21, the combination of Hass and Robinson et al OR Favin et al OR Cao differs from claims 16 in that it fails to teach an analyzer is a linear

polarizer. However, Wiech et al teaches an analyzer is a linear polarizer (i.e., As indicated in Fig. 2, Wiech teaches a linear polarizer POL and see page 549). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the analyzer is a linear polarizer as taught by Wiech et al in the system of the combination of Haas and Robinson et al **OR** Favin et al **OR** Cao. One of ordinary skill in the art would have been motivated to do this since allowing compensating the dispersion of the signal and to reduce the distortion of the signal and improving the quality of the signal.

Regarding claims 22 and 23, the combination of Hass, Robinson et al OR Favin et al OR Cao and Wiech et al teaches wherein at least one delay element includes a liquid crystal element or an electro-optical crystal (i.e., Fig. 1 of Haas, col. 3, lines 32-67, col. 4, lines 1-49, and col. 6, lines 32-49 and lines 61-67, and Fig. 1 of Cao, col. 4, lines 64-67, col. 5, lines 1-67 and col. 6, lines 1-54).

Regarding claim 24, the combination of Hass, Robinson et al OR Favin et al OR Cao and Wiech et al teaches at least one delay element includes at least one of a mechanically adjustable element, an electromotively adjustable element and a piezoelectrically adjustable element of three fiber loops (i.e., Fig. 1 of Haas, col. 3, lines 32-67, col. 4, lines 1-49, and col. 6, lines 32-49 and lines 61-67, and Fig. 1 of Cao, col. 4, lines 64-67, col. 5, lines 1-67 and col. 6, lines 1-54).

Regarding claim 26, the combination of Hass and Robinson et al OR Favin et al OR Cao teaches the polarization-controlling device includes a first $\lambda/4$ delay element, a $\lambda/2$ delay element and a second $\lambda/4$ delay element, the first $\lambda/4$, $\lambda/2$ and second $\lambda/4$

delay elements being disposed in series as $\lambda/4$-$\lambda/2$-$\lambda/4$ and being adjustable (i.e., Fig. 1 of Haas, col. 3, lines 32-67, col. 4, lines 1-49, and col. 6, lines 32-49 and lines 61-67, and Fig. 1 of Cao, col. 4, lines 64-67, col. 5, lines 1-67 and col. 6, lines 1-54).

Response to Arguments

5. Applicant's arguments filed 06/30/2008 have been fully considered but they are not persuasive.

The applicant's arguments to claims 13-26 are not persuasive. The independent claims 13 and 17 include the limitation of "**using a small, coupled-out portion of the communication-transmitting luminous flux to determine the transmission quality of the optical communication system**" and the applicant argues that the cited references (Robinson et al, Favin et al, and Cao) fail to teach such limitation. The examiner respectfully disagrees. As in Figure 3, Robinson et al teaches a small, coupled out portion of the communication transmitting luminous flux is tapped by an optical tap 37 and providing the tapped signal to a signal-to-noise-ratio meter 36 to determine the transmission quality of the optical communication system, and the signal-to-noise-ratio meter 36 provides the signal to noise ratio information SNR to the controller 22 for controlling the polarization mode dispersion compensator PMDC 32 (i.e., Fig. 3, col. 5, lines 5-32). **OR** Favin et al, in Fig. 1, teaches using a small, coupled out portion of the communication transmitting luminous flux from an optical tap 106 to determine the transmission quality of the optical communication system by a power meter 110 and providing the information signal to the controller 118 for controlling the

polarization controller 104 (i.e., col. 4, lines 60-67, col. 5, lines 1-34 and col. 6, lines 1-20). **OR** Cao, in Fig. 1, teaches using a small, coupled out portion of the communication transmitting luminous flux from an optical beam splitter 24 and providing this tapped signal to a DSP control unit 30 to determine the transmission quality of the optical communication system and the DSP control unit 30 provides a control signal to the driver 28 for controlling the polarization controller 22 (i.e., Fig. 1, col. 4, lines 64-67, col. 5, lines 1-67 and col. 6, lines 1-54).

The dependent Claims 16, 19 and 21 include the limitation of “**an analyzer is a linear polarizer**” the applicant argues that the cited references (Haas, Robinson et al, Favin et al, Cao and Wiech) fail to teach such limitation. The examiner respectfully disagrees. Wiech et al teaches an analyzer is a linear polarizer (i.e., As indicated in Fig. 2, Wiech teaches a linear polarizer POL and see page 549).

Therefore, it is believed that the limitations of claims 13-26 are still met by the combination of Haas and Robinson et al **OR** Favin et al **OR** Cao and Wiech et al, and the rejection is still maintained.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant’s disclosure.

Ono (US Patent No. 5,473,457) discloses method and apparatus for compensating dispersion of polarization.

Bruyere et al (US Patent No. 6,339,489) discloses device for compensating the dispersion of polarization in an optical transmission system.

Ono (US Patent No. 5,414,550) discloses method and apparatus for compensating dispersion of polarization.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

/Hanh Phan/

Primary Examiner, Art Unit 2613